SPW5. Project Effects on Groundwater

Study Plan W5, Task 1

Oroville Facilities Relicensing FERC Project NO. 2100

SPW5. Project Effects on Groundwater

Study Plan Objectives:

Quantify localized effects on groundwater levels and quality from Thermalito Forebay and Afterbay operations

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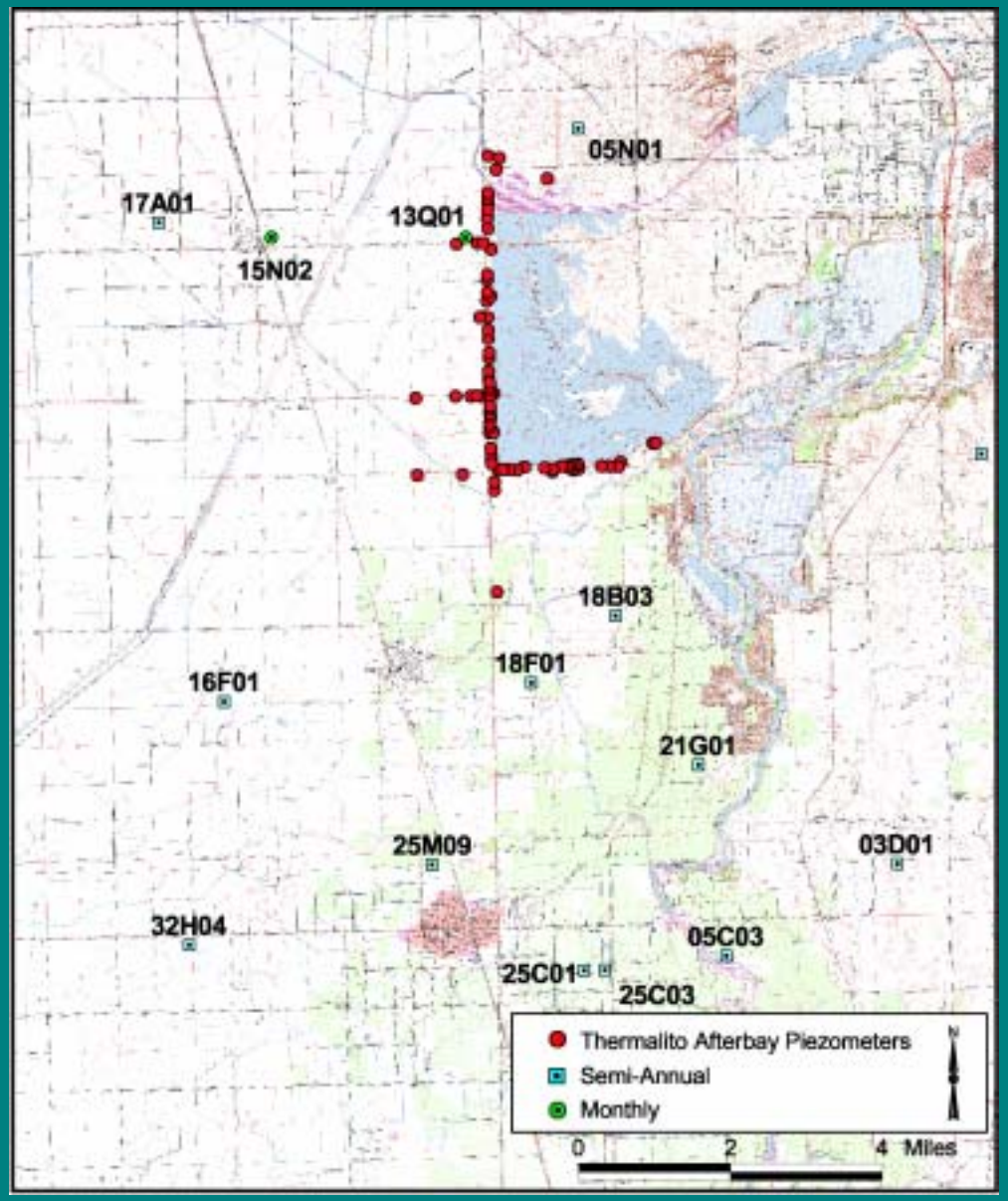
Task 1, Phase 1. Review existing groundwater data to determine if sufficient data is available to determine any effects from the project to local groundwater

-Groundwater levels

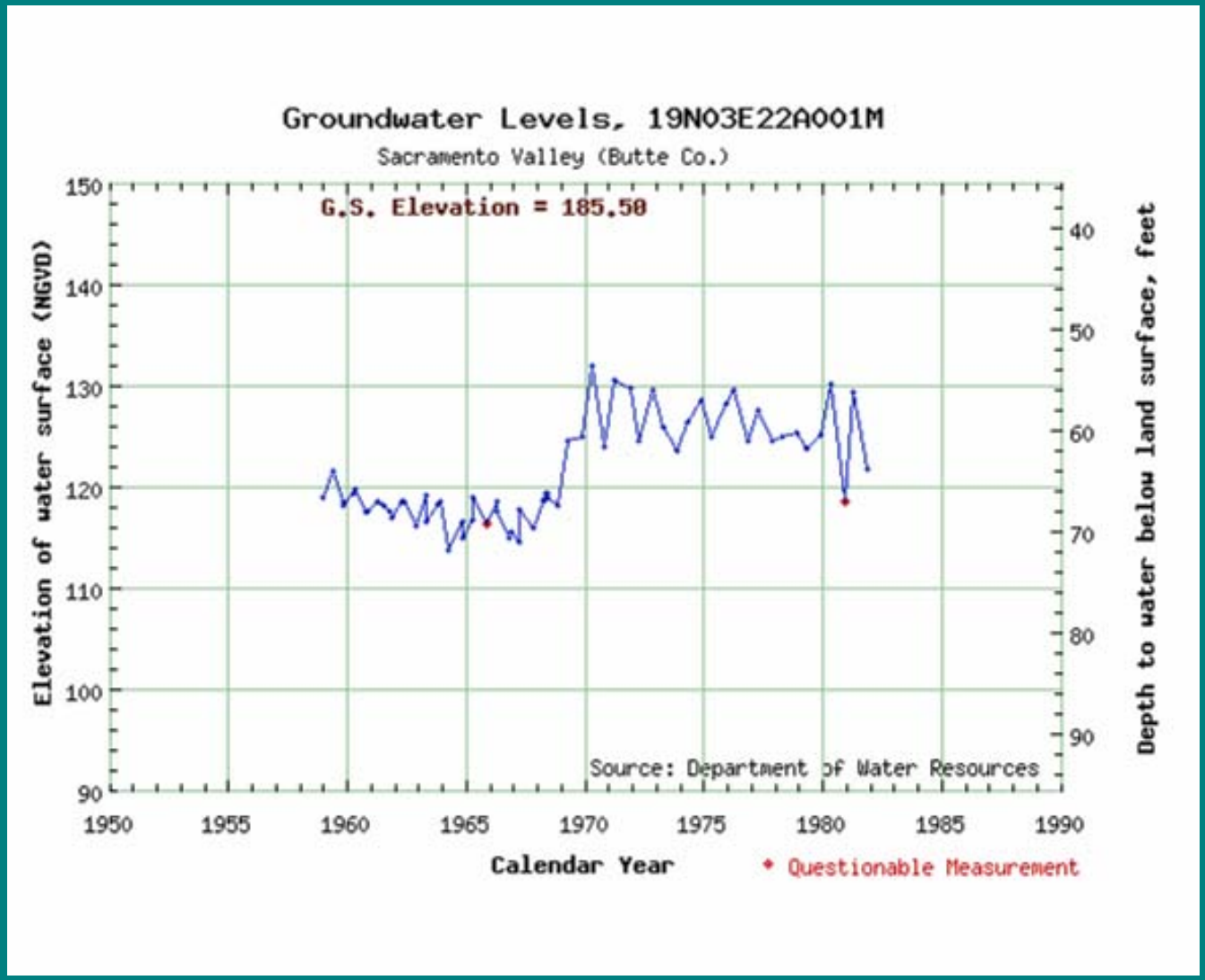
-Groundwater quality

Task 1, Phase 2. Additional groundwater monitoring if necessary following Phase 1

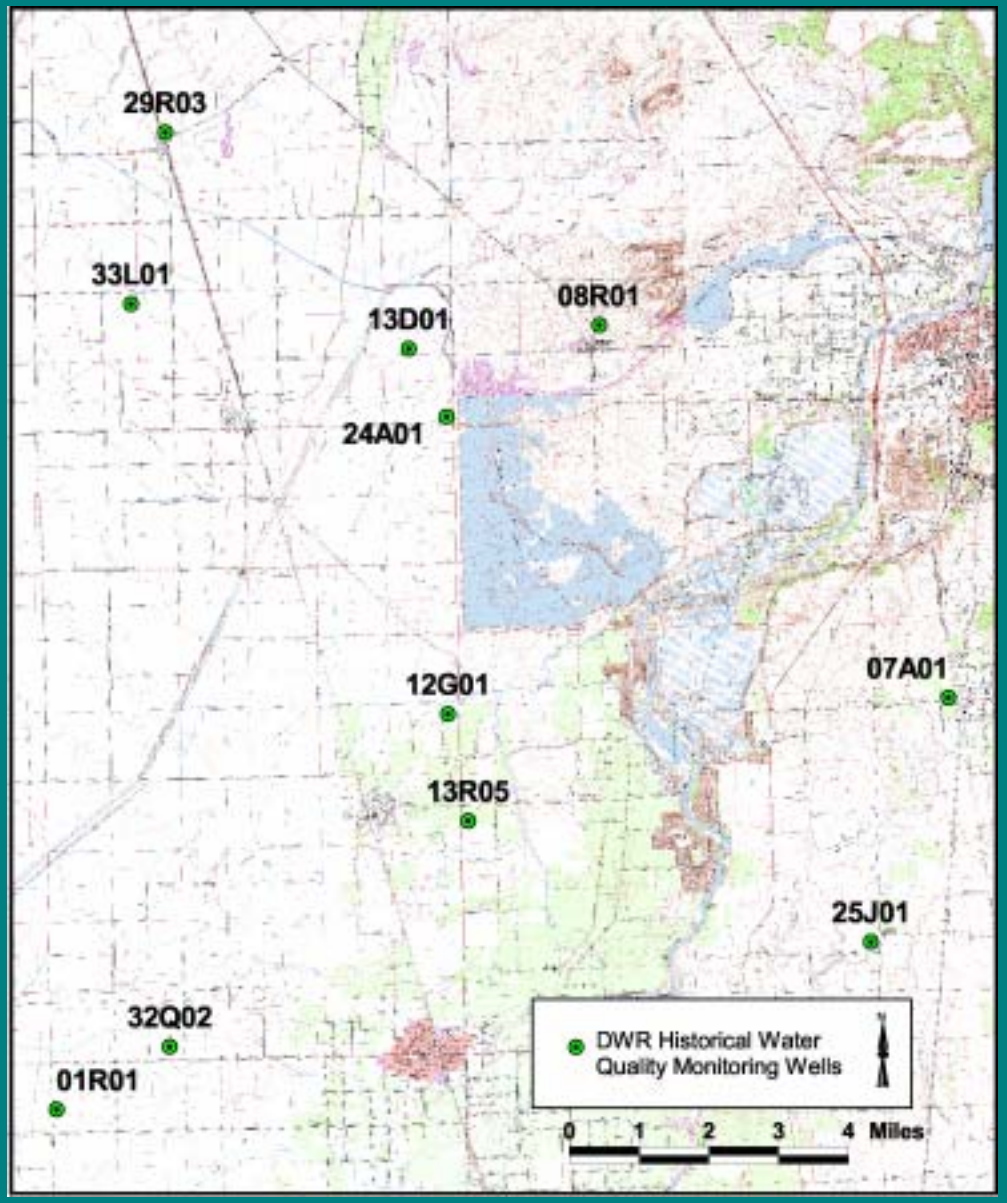
Task 1, Phase 1 Groundwater level assessment
Current DWR groundwater level monitoring wells



Task 1, Phase 1 Groundwater level assessment
Groundwater levels in the vicinity of the Thermalito Forebay



Task 1, Phase 1 Groundwater quality assessment
Groundwater wells previously sampled for water quality



Task 1, Phase 1 Conclusions

-Groundwater levels increased following completion of project

-Groundwater quality data inadequate for any reliable conclusions

-Additional water quality monitoring required for proper assessment of any effects from project to local groundwater

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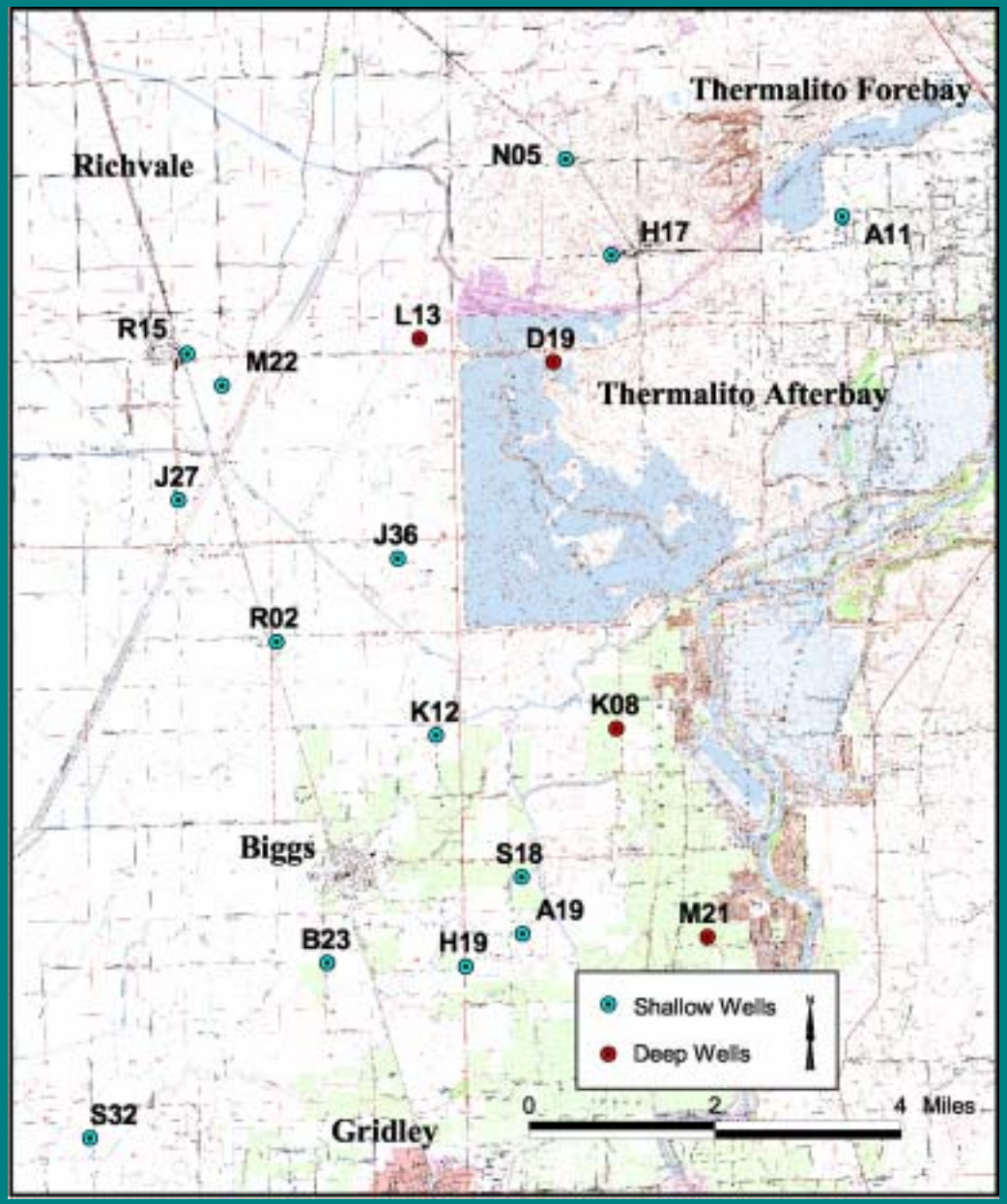
Task 1, Phase 2. Additional groundwater monitoring

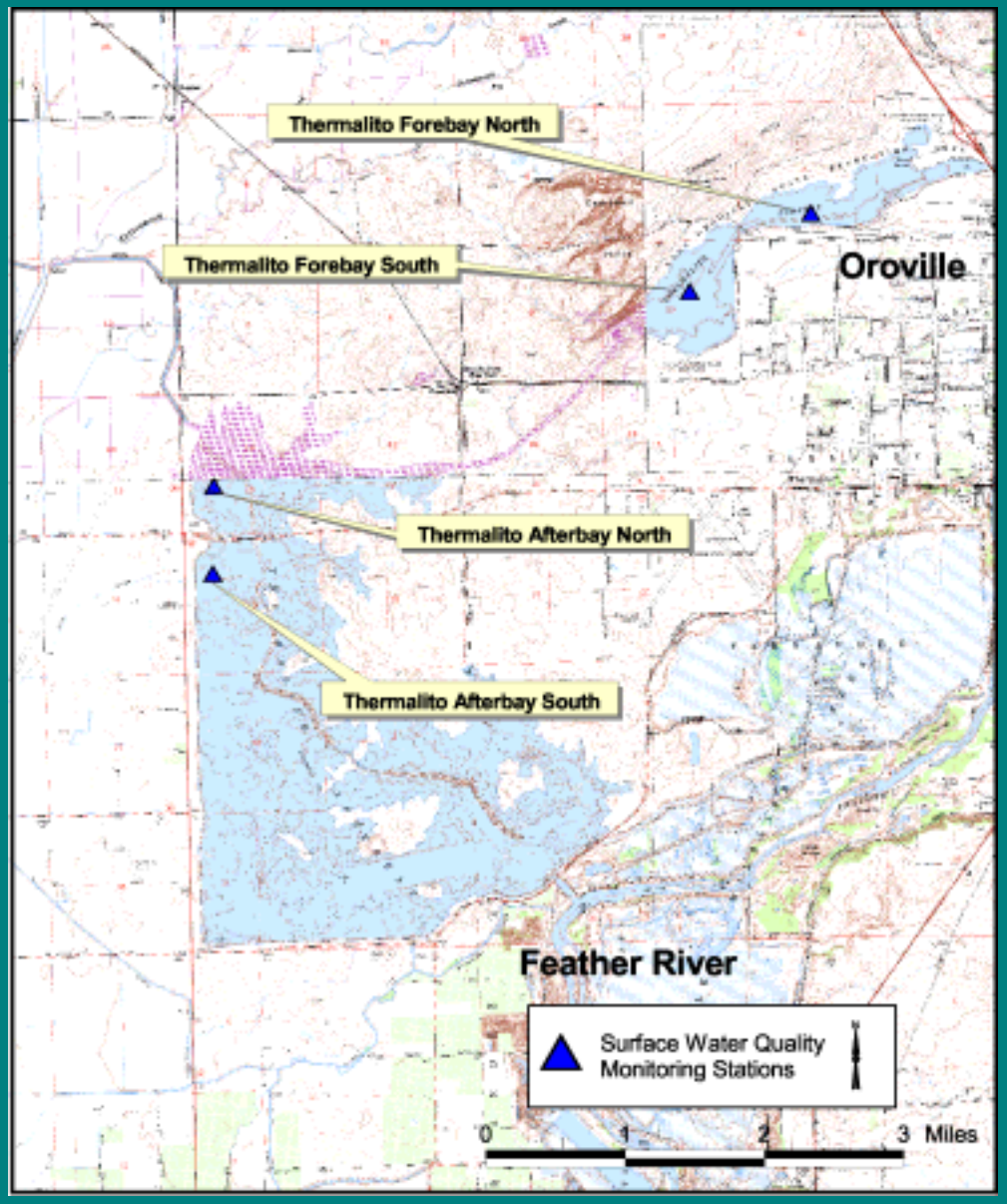
-No groundwater level monitoring

-Initiate groundwater quality monitoring during spring and repeat in fall 2003

Task 1, Phase 2. Groundwater sampling locations



Surface water quality monitoring stations at Thermalito Forebay and Afterbay from SPW1



Water quality parameters to be monitored

Physical Data

Water Temperature
Specific Conductance
pH

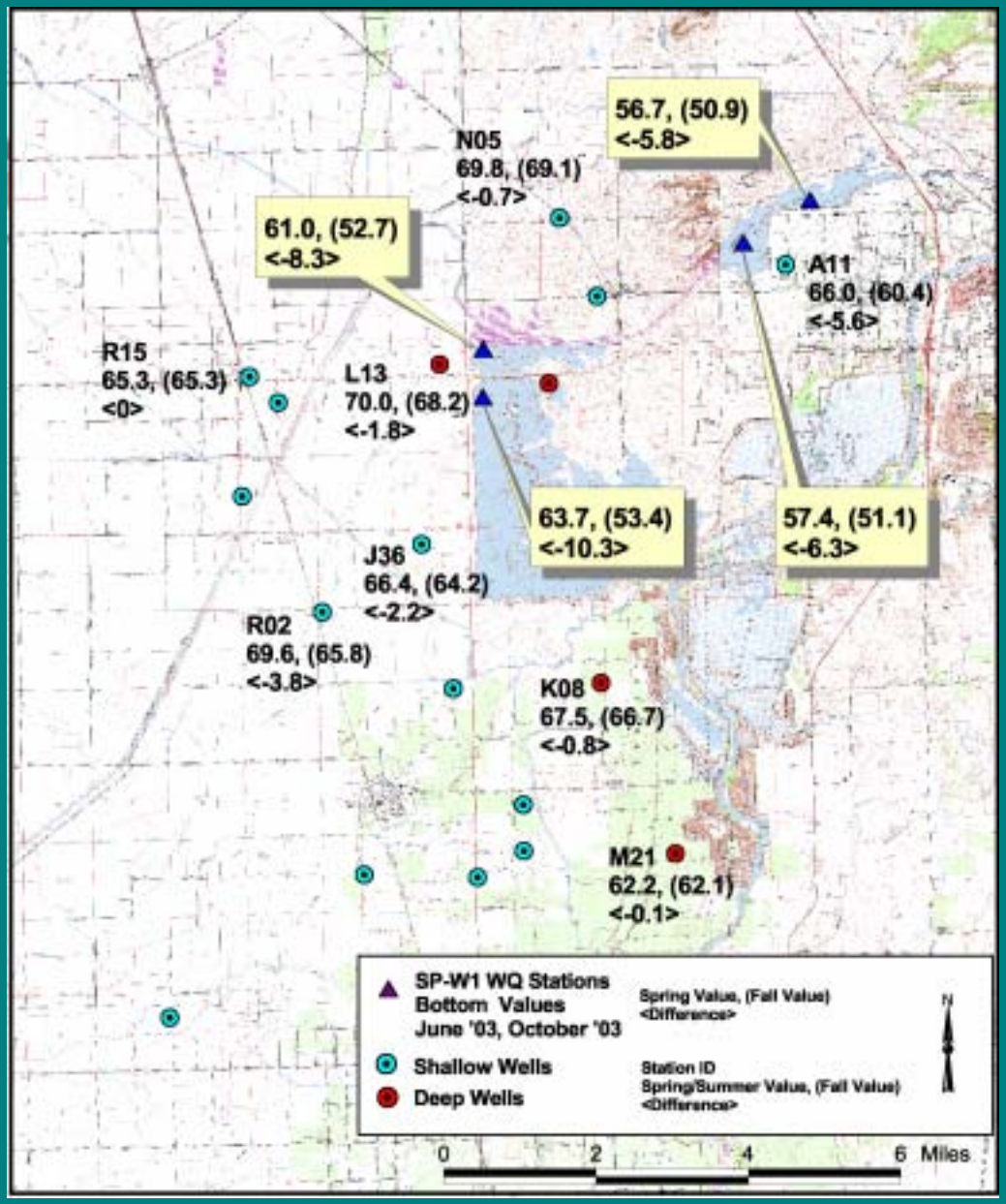
Minerals

Calcium
Magnesium
Potassium
Sodium
Boron
Chloride
Sulfate
Alkalinity
Total Dissolved Solids
Hardness

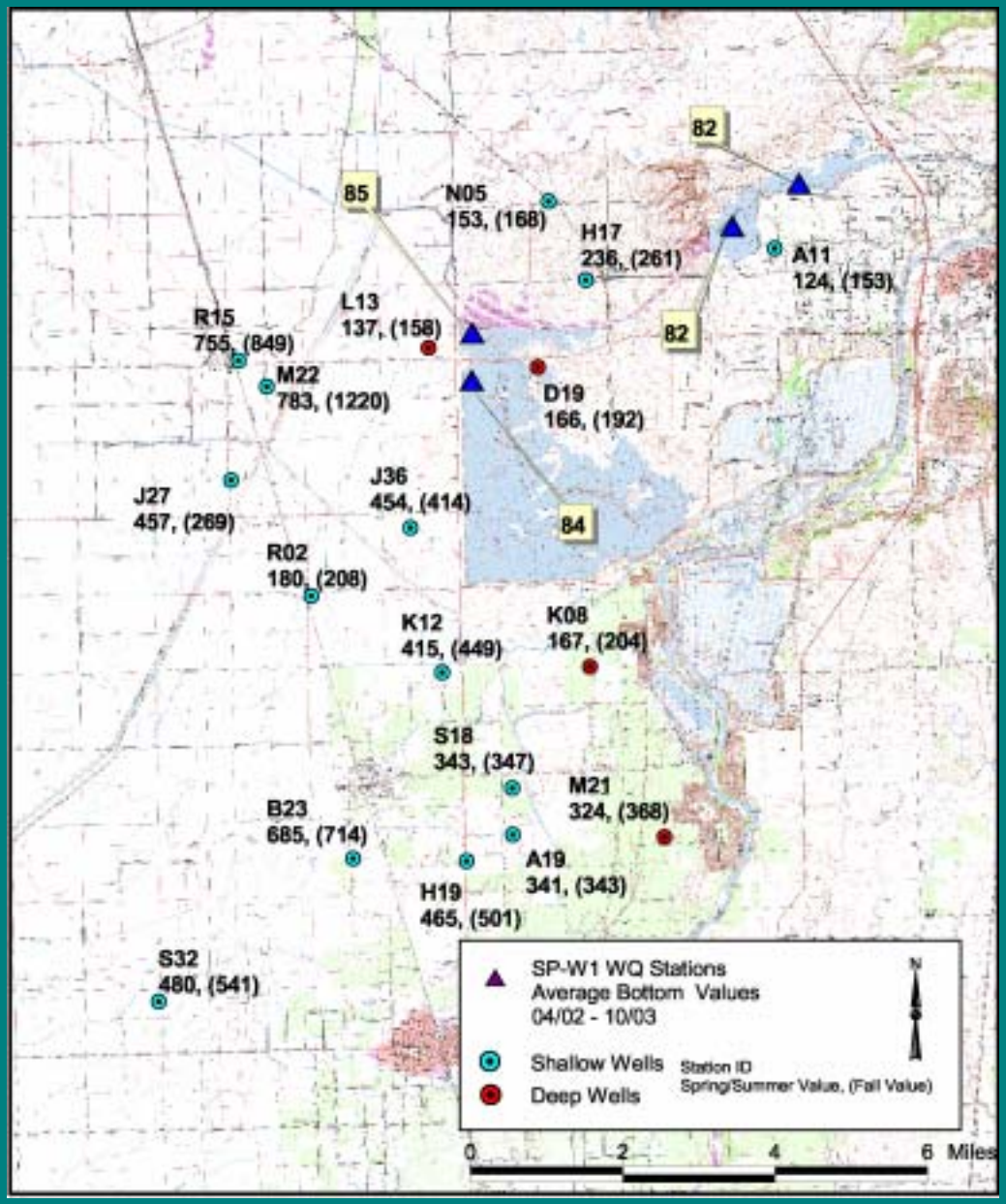
Metals

Total Aluminum
Dissolved Aluminum
Total Mercury

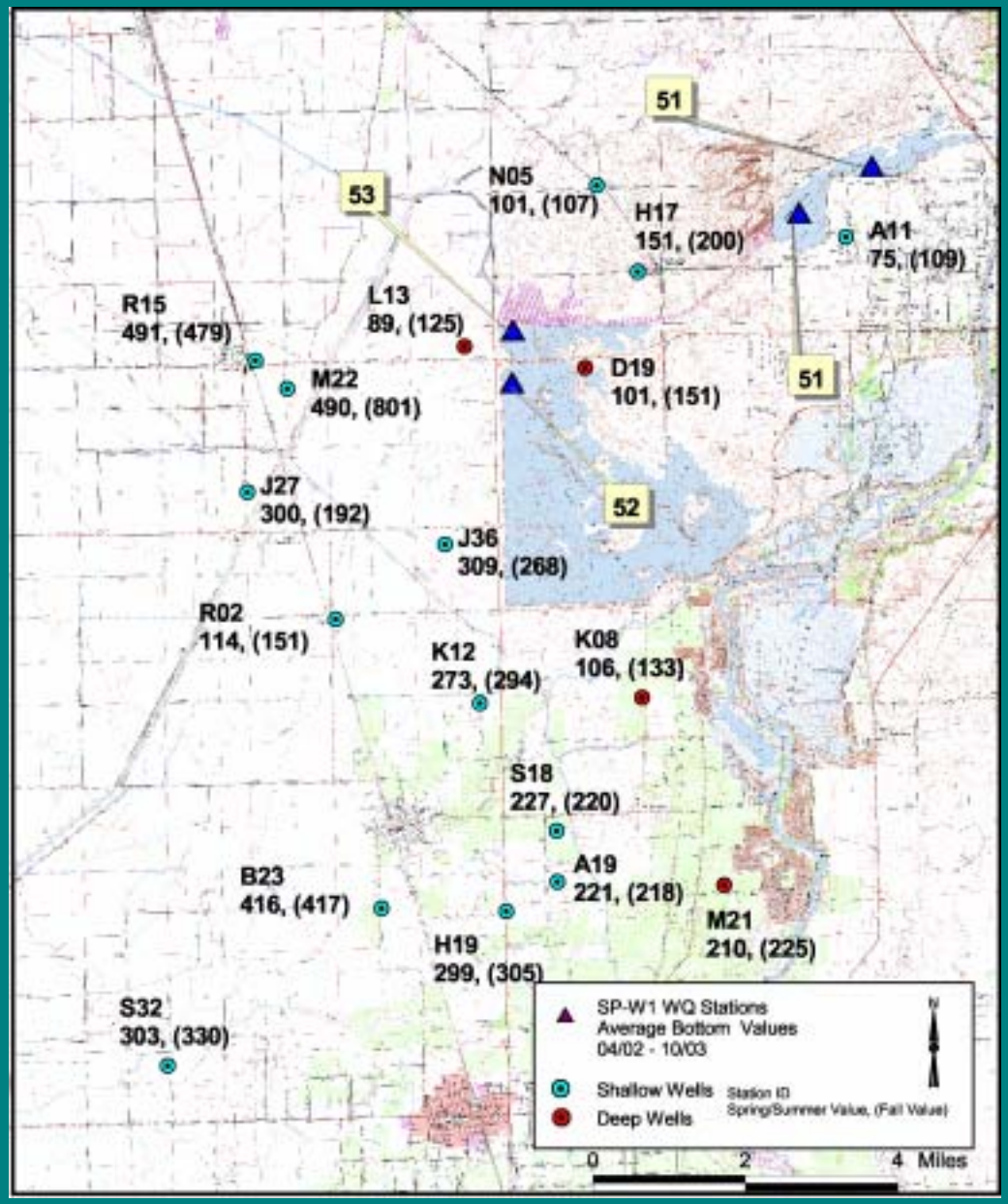
Comparison of groundwater and surface water temperatures



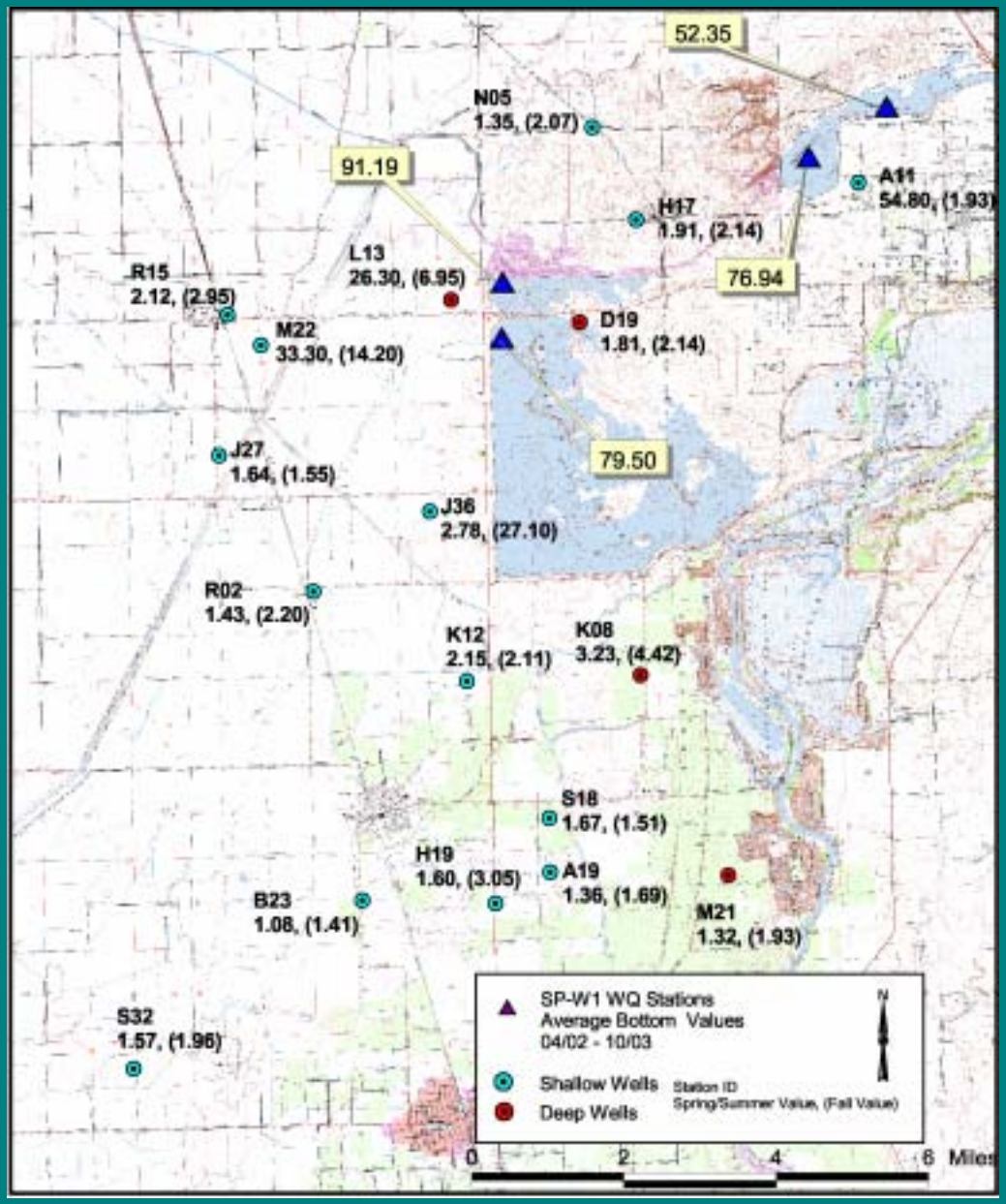
Comparison of groundwater and surface water conductivity.



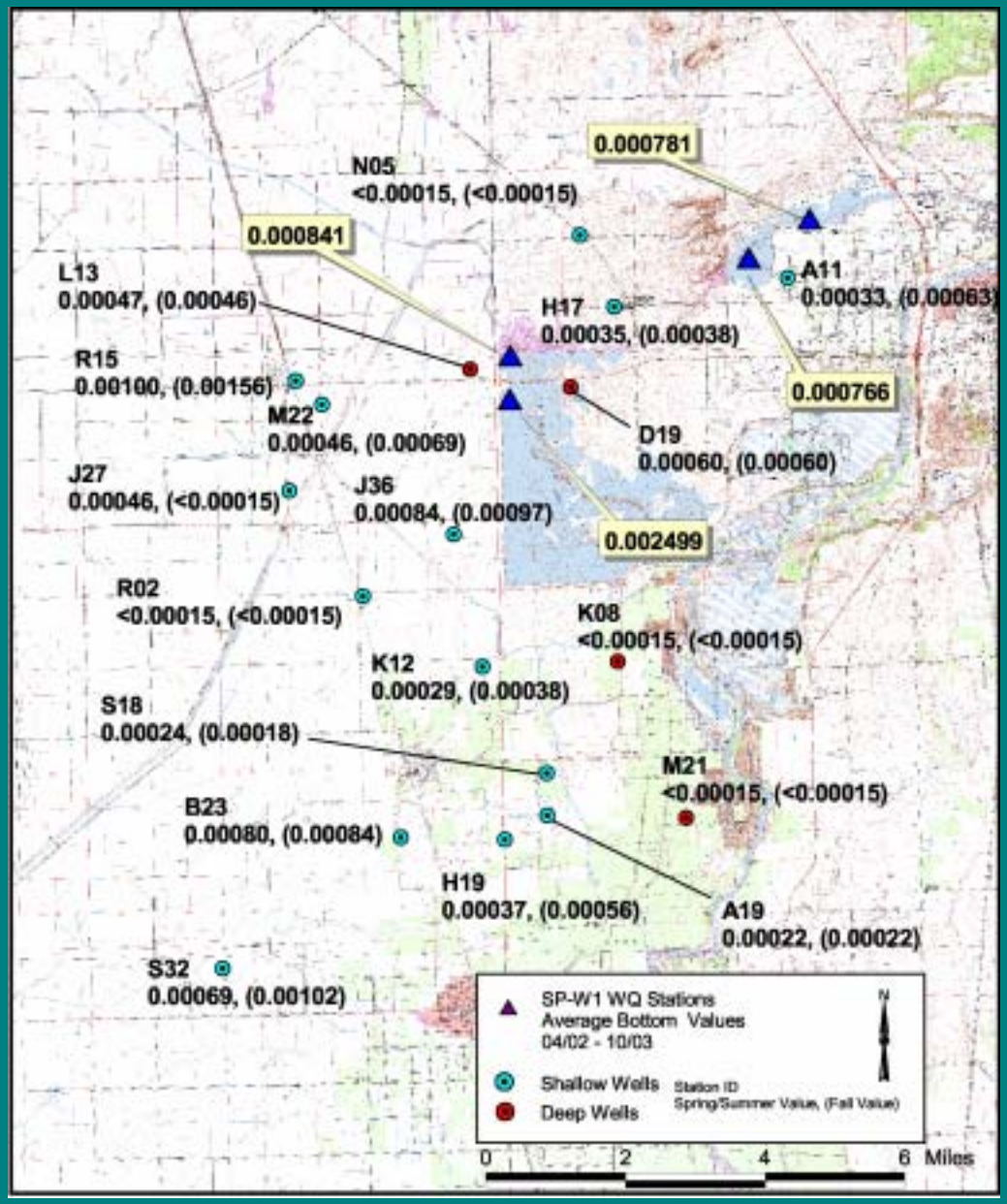
Comparison of groundwater and surface water total dissolved solids



Comparison of groundwater and surface water total aluminum



Comparison of groundwater and surface water total mercury



Project effects on local groundwater

- Physical parameters
  - -water temperatures, pH, specific conductance
- Minerals
  - -calcium, magnesium, sodium, etc.
- Metals
  - -total and dissolved aluminum, total mercury

Summary

-Results from Phases 1 and 2 do not indicate any adverse effects to groundwater levels or quality

-Any effects to groundwater would be subtle and beneficial

-No indication that surface waters are altering groundwater composition